

REMARKS

This Amendment is being filed in response to the Office Action dated August 15, 2002. For the following reasons, this application is in condition for allowance and the case should be passed to issue.

The Examiner states that the Oath or Declaration was defective because the specification to which the Oath or Declaration is directed has not been adequately identified, in particular, the typographical error of "apparatus". However, Applicants respectfully traverse this determination of the Oath or Declaration as defective. In particular, it is respectfully submitted that the specification to which the Oath or Declaration is directed has been adequately identified, in spite of the typographical error in the title of the invention. Referring to MPEP § 602, the section regarding identification of application states that while certain information should be provided, it is not essential that all of these spaces be filled in, in order to adequately identify the specification in compliance with 37 C.F.R. § 1.63(b)(1). The spaces include the names of the inventors, title of the invention, application number, filing date, and foreign priority application information. The MPEP further states that the filing of a combination of information supplied in an Oath or Declaration on the application filing date with a specification are acceptable as a minimum to identifying a specification and compliance with any one of these items would be accepted as complying with the identification requirement of 37 C.F.R. § 1.63. In particular, the name of the inventor and reference to an attached specification that is both attached to the Oath or Declaration at the time of execution and submitted with the Oath or Declaration on filing is considered acceptable

as a minimum to comply with the identification requirement of 37 C.F.R. § 1.63. In this case, the names of the inventors appear on the Declaration and reference is made to the attached specification which is attached to the Oath or Declaration at the time of execution and was submitted with the Oath or Declaration on filing. It is not necessary for the title to be included at all on the Declaration, and incorrect, inadvertent mistyping of the title on the Declaration does not affect the fact that the Oath or Declaration met the acceptable minimum identification under 37 C.F.R. § 1.63. Accordingly, reconsideration and withdrawal of the objection to the Oath or Declaration are respectfully requested.

The drawings were objected to as failing to comply with 37 C.F.R. § 1.84(p)(4) because of the reference character "414" being used to designate both a single reel and a guide arm motor. A proposed drawing correction has been filed with this Amendment to change the designation of the single reel to "417". The specification has been amended to reflect this change in the drawings.

The drawings were objected to as including reference signs not mentioned in the description. The proposed drawing correction submitted with this Amendment removes the reference signs that have not been mentioned in the description.

Hence, the objections to the drawings have been obviated by the amendments proposed in the Request for Approval of Drawing Amendments. Reconsideration and withdrawal of the objections to the drawings are therefore respectfully requested.

The objection to the disclosure has been obviated by the amendments made in the manner suggested by the Examiner. Reconsideration and withdrawal of the objection to the disclosure are respectfully requested.

The objection to claim 10 as being of improper dependent form has been obviated by the cancellation of this claim.

Claims 4-8 and 10-20 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. This rejection has been obviated by the amendments made to claims 4-8 and 10-20 to provide proper antecedent basis in the manner suggested by the Examiner. Withdrawal of the rejection of these claims under 35 U.S.C. § 112, second paragraph, is respectfully requested.

Claims 1-4 and 9-11 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ohshita. Claims 1-20 were rejected under 35 U.S.C. § 102(e) as being anticipated by Theobald. These rejections are hereby traversed and reconsideration and withdrawal thereof are respectfully requested. The following is a comparison of the present invention, as currently claimed, with the Ohshita and Theobald references.

Applicants submit that the U.S. Patent and Trademark Office did not establish a *prima facie* basis to deny patentability to the claimed invention under 35 U.S.C. § 102 for a lack of the requisite factual basis. In this respect, Applicants stress that the factual determination of lack of novelty under 35 U.S.C. § 102 requires the identical disclosure in a single reference of each element of the claimed invention, such that one having ordinary skill in the art would have recognized that the identically claimed invention is within the public domain. ATD Corp. v. Lydall, Inc., 48 USPQ2d 1321 (Fed. Cir. 1998); Electro Medical Systems S.A. v. Cooper Life Sciences, Inc., 32 USPQ2d 1017 (Fed. Cir. 1994). Further, claim 1 is cast in means plus function format, so the Examiner must show that the prior art performs the identically claimed function, and uses structural

equivalents to the structure disclosed in the specification. The PTO has not discharged these burdens.

The present invention relates to a tape drive mechanism comprising a hub filler coupled to a guide rail, and means for preventing detachment of an end of a tape from the hub filler during a tape unloading operation. In the present invention, the tape is not transported back to the single reel by the hub filler, with a cartridge reel motor operating only to take up slack, as in the prior art. Rather, the cartridge reel motor of the invention provides a torque to pull the tape into the single reel. The tension in the tape is controlled through the guide arm motor, guide arm and hub filler combination. The tensioning can be passive, such as simply allowing the frictional forces and other forces to act counter to the pulling by the cartridge reel motor. The tensioning can be more active, by controlling the guide arm motor to change the amount of drag providing at the hub filler. Figures 4 and 5 in the present specification show free body diagrams that depict the forces applied to the hub filler during an unloading operation. In particular, Figure 4 shows the force F_T as the force applied by the tape to the hub filler through the attached leader pin. In the opposite direction are the forces F_M , which is the force of the guide arm motor; F_A , as the force applied to the hub filler by the guide arm; and F_G as the force applied to the hub filler by the friction between the hub filler and the guide rail. Hence, the forces of the motor, the guide arm and the guide rail act in an opposite direction to that of the force applied by the tape. A controller operates to control the guide arm motor and the cartridge reel motor to maintain the tension in the tape. Neither Ohshita nor Theobald have been shown to identically disclose each of the features of the claimed invention.

Ohshita, EP 0 467 143, relates to a tape threading apparatus used in a tape unit. In particular, the Examiner refers to column 4, lines 32-40 which is reproduced below:

When unthreading the magnetic tape 2, the threading motor 21 rotates clockwise. The pin 8 travels back along the guide groove 5b while pulling the leader block 3 to insert the leader block 3 into the cartridge 1. During insertion, the leader block 3 has to be pushed against the opposing force of the tongue provided in the cartridge 1, causing a shock to both cartridge 1 and the threading arm.

From this description, the Examiner asserts that the guide arm and the guide arm motor are arranged to provide drag on the tape being unloaded from the tape drive mechanism. However, it is quite clear from the description that, in fact, the exact opposite happens. The motor 21, seen in Figure 3, rotates clockwise. This has the action of pulling the leader block 3, to thereby insert the leader block 3 into the cartridge. The guide arm motor is therefore applying force in the same direction as the travel direction of the tape. By contrast, as seen in Figure 4, the force of the motor in the present invention is in a direction opposite to that of the travel direction of the tape, as indicated by the force on the tape. The guide arm and the guide arm motor are not dragged in Ohshita, but rather provide the motive force for movement of the leader block. Thus, the structure of Ohshita is not equivalent to that of the present invention so that claim 1 cannot be considered anticipated under 35 U.S.C. § 102 when properly interpreted under the strictures of 35 U.S.C. § 112, second paragraph.

Similarly, claims 9 and 16 are also patentable over Ohshita. Claim 9 of the present invention recites that the guide arm and the guide arm motor are arranged to provide drag on a tape and thereby prevent detachment of an end of the tape from the hub filler during movement of the hub filler along the guide rail during an unloading

operation. As noted above, Ohshita does not provide a guide arm motor and guide arm arranged to provide drag on the tape during an unloading operation. Instead, the guide arm motor and the arms of Ohshita actually move the leader block toward the supply reel. Likewise, claim 17 describes the applying of tension to an end of the tape in the direction toward the take-up reel. Ohshita fails to disclose this applying of tension to the end of a tape in a direction toward the take-up reel during the unloading operation.

For all of the above reasons, the PTO has failed to establish that claims 1-4 and 9-11 are anticipated by Ohshita under 35 U.S.C. § 102(b). Reconsideration and withdrawal of this rejection are therefore respectfully requested.

Theobald, U.S. Patent No. 6,082,652 discloses an independent double hub take-up reel arrangement for use with a single reel cartridge tape drive. A load motor is provided and is coupled to a link load arm 122. The description of the unloading operation is provided at column 5, lines 8-25. A supply reel 104 is driven to reel the magnetic tape back into the cartridge 102. A load motor selectively pivots the link load arm 122, to shunt the take-up link 114 between the connect and disconnect positions.

The Examiner has provided no factual basis that the guide arm and the guide arm motor of Theobald are arranged to provide drag/tension on the tape and to be dragged/tensioned by the tape being unloaded from the tape drive mechanism. The Examiner has merely shown a load motor and a link 122 that is pivoted by the load motor to move the take-up link between the connect and disconnect positions. There is no factual evidence provided by the Examiner that the link 122 actually provides drag/tension on the tape. Accordingly, claims 1, 9 and 16 are not anticipated by Theobald, as a reference must identically disclose each and every element of a claimed

invention in order to anticipate the claims of an invention. Mere supposition does not substitute for the factual basis required to support the conclusion of anticipation.

In addition, the dependent claims further define the invention and have not been shown by the PTO as being disclosed or suggested by Theobald. For instance, claim 5 recites that the guide arm motor is under control of a controller arranged to provide tension on the tape by electrical induction within the guide arm motor. Theobald makes no mention of such a controller that provides tension in the tape by electrical induction within the guide arm motor. The Examiner is requested to provide the column and line number where such description of the electrical induction within the guide arm motor is described, as being arranged to provide tension under the control of a controller. Similarly, claim 6 describes that the electrical induction, frictional resistance of the hub filler and frictional resistance of the guide arm applies force to the hub filler in opposite direction toward direction that the hub filler is travelling in the unloading operation. There is no description whatsoever in Theobald of such forces. Likewise, claim 7 describes that the guide arm is arranged to provide tension by magnetic resistance within the guide arm motor. The Examiner has not provided any line of reasoning or support that Theobald identically discloses such an arrangement. Similar limitations appear in dependent claims 11-15 and 17-20.

For all of the above reasons, the PTO has failed to establish that Theobald identically discloses each and every element or claimed step of the present invention. Reconsideration and withdrawal of the rejection of claims 1-20 under 35 U.S.C. § 102(e) are therefore respectfully requested.

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In light of the amendments and remarks above, this application should be considered in condition for allowance and the case passed to issue. If there are any questions regarding this Amendment or the application in general, a telephone call to the undersigned would be appreciated to expedite the prosecution of the application.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached page is captioned "Version with markings to show changes made."

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE**IN THE SPECIFICATION:****Page 2, lines 3-9**

Figure 1 is a view of the tape drive loading mechanism disclosed in U.S. Patent No. 6,034, 839. During a loading operation, the hub filler 300 enters into the cartridge 210 and attaches to the end of the tape. The guide arm 250 then drives the hub filler 300 along the guide rail 247, trailing the tape across the read/write head 222 and into the take-up reel 242. The hub filler 300 enters the take-up reel [245] 242 through a channel 244 and into the hub 245 of the take-up reel 242.

Page 6, line 20 - Page 7, line 4

Figure 3 is a diagram exemplifying the relationship between the components of a tape drive mechanism of the present invention. The hub filler 402 is shown riding along the guide rail 408, with tape 406 attached. The end of the tape 406 is fixedly attached to a leader pin 404, which is releasably attached to the hub filler 402. The other end of the tape 406 is wound around the single reel [414] 417 of cartridge 400. The single reel [414] 417 is mechanically coupled to a cartridge reel motor 412. The cartridge reel motor 412 rotates during a tape unloading operation to retract the tape 406 into the tape cartridge 400.

Page 7, lines 16-20

During the tape read/write operation, the hub filler 402, leader pin 404, and tape 406 are attached to the take-up reel 410. The take-up reel 410 and the single reel [414]

417 are rotated to run the tape across a read/write head (not shown) for exchange of data between the tape drive mechanism and the tape 406.

Page 8, lines 11-21

During an unloading operation, in accordance with the present invention, the cartridge reel motor 412 rotates the single reel [414] 417 such that the tape 406 is retracted into the cartridge 400 by the tape 406 being wound around the [cartridge] single reel [414] 417. Tension is maintained in the tape 406 at the hub filler [406] 402, such that it is ensured that the leader pin 404 will not be inadvertently detached from the hub filler 402 during transport along the guide rail 408. This tension is maintained by the drag force the hub filler 402 exerts on the tape 406 as the tape 406 retracts into the cartridge 400. The drag force may be considered one type of means for preventing detachment of an end of tape 406 from the hub filler 402 during movement of the hub filler 402 along the guide rail 408 during an unloading operation.

Page 10, lines 8-17

Hence, with the present invention, the tape is not transported back to the single reel by the hub filler, with the cartridge reel motor 412 operating only to take up slack, as in the prior art. Rather, it is the cartridge reel motor 412 that provides the torque to pull the tape 406 into the single reel [414] 417, in the present invention. Tension in the tape 406 is controlled through the guide arm motor 414, guide arm 416 and hub filler 402 combination. This tensioning can be passive, such as simply allowing the frictional forces and other forces to act counter to the pulling by the cartridge reel motor 412. The tensioning can be more active, as described above, by controlling the guide arm motor 414 to change the amount of drag provided at the hub filler 402.

IN THE CLAIMS:

Please cancel claim 10 without prejudice or disclaimer of the subject matter thereof.

4. (Amended) The tape drive mechanism of the claim 3, wherein:

the guide arm and the guide arm motor are arranged to be dragged by [a] the tape being unloaded from the tape drive mechanism.

5. (Amended) The tape drive mechanism of claim 4, wherein:

the guide arm motor under control of a controller is arranged to provide tension on [a] the tape by electrical induction within the guide arm motor.

11. (Amended) The tape drive mechanism of claim [10] 2 wherein the guide arm and the guide arm motor are arranged to be dragged by [a] the tape being unloaded from the tape drive mechanism.

12. (Amended) The tape drive mechanism of claim [11] 2 wherein the guide arm motor under control of a controller is arranged to provide tension by stimulated electrical induction within the guide arm motor.

13. (Amended) The tape drive mechanism of claim 12, wherein the electrical induction, frictional resistance of the hub filler, and [the] frictional resistance of the guide arm applies torque to the hub filler in the opposite direction to a direction that the hub filler is traveling in the unloading operation.

16. (Amended) A method of preventing detachment of an end of tape from a hub filler during movement of the hub filler along [the] a guide rail during an unloading operation, comprising the steps of:

driving an end of tape with a tape cartridge motor in a direction away from a
[tape-up] take-up reel; and

applying tension to [an] the end of the tape in a direction toward the take-up reel.

17. (Amended) The method of claim 16, wherein:

the step of [providing] applying tension comprises the further steps of:

providing tension through a guide arm coupled to the hub filler; and

providing tension through a guide arm motor coupled to the guide arm.